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## Overview

KLRI is performing research to extend our healthy years by improving muscle strength, understanding the role of various nutritional components in our diets, and achieving a better grasp of human aging physiology.

There are many anti-aging remedies and recommendations on the markets today. However, most lack scientific evidence, while having potential side effects. We need reputable scientific organizations to spearhead research to further our understanding of treatments developed to increase our healthy years. KLRI differs from most research institutions because we have a wide range of scientific expertise and focus on overall effects of aging, rather than disease cures.

## Current Research

**Testosterone's Effects on the Progression of Atherosclerosis in Aging Men (TEAAM):** KLRI plans to collaborate on a study designed to determine the effects of testosterone replacement in older men on cardiovascular disease risk. Testosterone is the major male hormone. The loss of testosterone as men age may lead to decreases in bone and muscle strength and contribute to frailty and poor quality of life. This study will help demonstrate how giving testosterone to aged men will affect the risk of heart disease.

**Diabetes and Oxidative Stress:** KLRI supports and helps with a Veteran's Administration study which measures the effects of better glucose control on oxidative stress-related risk factors for heart disease in adult-type diabetics. This study investigates how changes in these risk factors relate to progression of coronary heart disease.

**Kronos Early Estrogen Prevention Study:** Kronos Announces a five-year study of female hormone replacement therapy aimed at providing prospective data on the risks and benefits of early menopausal hormone intervention, particularly as it relates to the progression of atherosclerosis.

## Completed Research Projects

**Cancer Detection with the AMAS Test:** Malignin is a protein found on the outer surface of many kinds of cancer cells. Making antibodies against malignin may be one way the body defends against cancer. Therefore, measuring levels of anti-malignin antibody in serum (AMAS) could help diagnose cancer. Carefully controlled and rigorous studies are still needed to define how good this test really is. KLRI sponsors a study in women having biopsies for breast cancer. If the AMAS test proves reliable, it will help to diagnose cancers at an early stage when they are smaller and easier to treat.

**Validation of Oxidative Stress Assessments:** Oxidative stress is the ongoing damage to an organism due to oxidation (the reaction of cell components with oxygen). This resembles the rusting of metal components in a car, and leads to loss of function. Oxidative stress is considered an important factor in the aging process. KLRI performs studies to characterize and validate laboratory methods for assessing oxidative stress. Such reliable methods will be needed to examine the effects of therapies designed to slow or reduce oxidative stress.

Sub-Study 1: Healthy men and women ages 20-85

Sub-Study 2: Heavy smokers before and after smoking cessation program

**Omega-3 Fatty Acids and Endocrine/Immune Dysfunction in Humans:** Omega-3 fatty acids are polyunsaturated fatty acids found in certain natural foods, especially fish, like salmon and tuna. They are known to help protect against heart disease. Animal studies have shown that omega-3 fatty acids may help hormone signals get into cells whose outer layer (cell membrane) has been stiffened by age. KLRI studies examine the effects of a diet high in omega-3 fatty acids on the loss of normal hormone balance that occurs during normal aging.